Abstract:

Effect of different media and temperatures on the antibacterial activity of allicin

Background and Objectives: Allicin is the main active component of garlic extract. It has got potential antimicrobial activity against variety of microorganisms. To date, Allicin is not used as therapeutic agent in treatment of infectious diseases and there is not standardized working protocol for evaluation of its antimicrobial activity. The aim of this study was to evaluate the influence of culture media and temperature for determining MIC of allicin against specific bacterial pathogens.

Methods: Garlic methanol extract was prepared and allicin was purified using semi-preparative HPLC procedure. MICs and MBCs of allicin were determined for 12 standard bacterial strains by microdilution method according to CLSI protocol, using 6 culture media (Mueller-Hinton broth, Todd-Hewitt broth, Brucella broth, Brain-Heart infusion broth, Trypticase soy broth and Luria-Bertani) and three incubation temperatures (25ºC, 30ºC and 37ºC).

Results: The MICs for most individual isolates at the same temperature varied with the type of media used. In general bacteria grown in Todd-Hewitt broth and Brucella broth showed, the highest and Luria-Bertani showed the least MICs in comparison to other media. The incubation temperature influenced the MICs, with, in general, higher MICs at 37°C than at 30 °C and 25 °C in given specific bacterium.

Conclusion: The results showed that both the culture media and temperature influence on MICs of allicin. According the results LB medium appears to be a suitable medium for susceptibility testing of allicn with bacteria.

Key words: Allicin, Temperature, Culture Media, Antimicrobial activity